SECTION C Descriptions and Specifications

Statement of Work for
Integrated Logistics Support Services

1. **SCOPE**

This statement of work establishes the level of effort required for the furnishing of integrated logistics support services for Hull, Mechanical and Electrical (HM&E) technical data development, maintenance and management. This support requires the contractor to provide technical data packages and other data support, technical data conversion, distribution of technical data, management of technical data, miscellaneous technical data systems support, data protection, general support of joint logistics products and processes, and the design development, testing and fielding support of joint technical data integration. The overall effort is in support of the Operational Sequencing System, Technical Manual, Planned Maintenance System/Class Maintenance Plan, and Supply Support.

2. **REFERENCES AND ENCLOSURES**

I. References

(a) MIL-P-24534A PMS Development Specification dated 7 May 1985
< http://www.ftscpac.navy.mil/Dept400/401COPY/RefDocs/c-2-2-4.pdf>

(b) EIA Standard 649 <http://www.geia.org/836>

(c) MIL-PRF-49506 dated 11 Nov 1996 Logistic Management Information
<http://dodssp.daps.mil>

(d) MIL-HBK-502 dated 30 May 1997 <http://dodssp.daps.mil>

(e) Provisioning, Allowance & Fitting Out Support (PAFOS) Manual, Chapter 4
<http://www.nslc.navsea.navy.mil/nslcprod/pafos.nsf/current/A4/$file/Chapter4.doc>

(f) Navy Cals DTD repository <http://navysgml.dt.navy.mil/repository.html>

(g) MIL-DTL-81927C, dated 26 Nov 1997, Manuals, Technical: General Style And Format Of (Work Package Concept) http://astimage.daps.dla.mil/quicksearch

(h) MIL-STD-38784(1), dated 1 Dec 2000, Standard Practice for Manuals, Technical: General Style and Format <http://astimage.daps.dla.mil/quicksearch>

(i) MIL-PRF-87269A dated 15 Aug 2000, Data Base, Revisable - Interactive Electronic Technical Manuals <http://astimage.daps.dla.mil/quicksearch>

(j) NAVSEA C2 DTD <http://navysgml.dt.navy.mil/repository.html>

(k) EOSS DTD <http://navysgml.dt.navy.mil/repository.html>

(l) MIL-DTL-24784 Manuals, Technical: General Acquisition and Development Requirements <http://astimage.daps.dla.mil/quicksearch

(m) S0005-AA-PRO-010/TMMP: NAVSEA/SPAWAR TMMP Operations and Life Cycle Support Procedures <http://nsdsa.phdnswc.navy.mil/tmmpltmmp-documents.asp>

(n) S0005-AA-GYD-030 Guide for User Maintenance of NAVSEA Technical Manuals
<http://nsdsa.phdnswc.navy.mil/tmmpltmmp-documents.asp>

(o) S0005-AA-GYD-070 Guide for Quality Assurance of NAVSEA Technical Manuals
<http://nsdsa.phdnswc.navy.mil/tmmpltmmp-documents.asp>

(p) S0300-AX-GYD-010 Hull, Mechanical and Electrical Equipment/Systems
Technical Manual Production and Style Guide
<http://nsdsa.phdnswc.navy.mil/tmmpltmmp-documents.asp>

(q) S0005-AD-PRO-010 Interactive Electronic Technical Manuals (IETM) Process Plan
<http://nsdsa.phdnswc.navy.mil/tmmpltmmp-documents.asp>

(r) PMS DTD <http://navysgml.dt.navy.mil/repository.html>

(s) EOSS development handbook <http://eoss.navsses.navy.mil>

(t) ATIS Compatibility Testing Procedures
<http://nsdsa.phdnswc.navy.mil/tmmpltmmp-documents.asp>

II. Enclosures

(1) SL790-AC-SPN-010 /CMP, Class Maintenance Plan (CMP)
(2) Directions for Preparing Responses to PMS Technical Feedback Reports

3. **REQUIREMENTS**
The contractor shall furnish services and products in support of the following programs:

? Operating Sequencing System (OSS)
? Technical Manuals (TMs)
? Planned Maintenance System/Class Maintenance Plan(PMS/CMP)
? Supply Support

3.1 **TASK AREAS**
Task areas requiring contractor support are defined.

3.1.1 **Operating Sequencing System (OSS)**
The purpose of OSS is to provide US Navy shipboard engineering personnel with technically correct, logically sequenced written procedures, charts and diagrams tailored to each ship's specific configuration. OSS dictates the procedures to be followed to complete major plant status changes. The use of OSS ensures proper system and equipment operation and minimizes damage to equipment and injury to personnel.

3.1.1.1 **Develop OSS**
Generate Operating Sequencing System (OSS) for selected HM&E ship systems. Specific guidance is contained in the EOSS development handbook and the prototype package, which will be cited in the delivery order.

3.1.1.2 **Update OSS**
Revise OSS to reflect the following:
a. Authorized ship alterations installed during depot maintenance periods or equivalent. During the maintenance periods, shipboard configurations will be modified; Ship checks are conducted in order to validate changes to EOSS procedures due to these modified alterations.
b. Approved Procedure Changes (APCs) issued by letter by NSWCCD SSES.
c. Changes in response to OSS feedbacks and NAVSEA (Naval Sea Systems Command) advisories.

3.1.2 **Technical Manuals (TMs)**

The TM branch supports the US Navy Fleet by providing services as the Technical Manual Maintenance Activity (TMMA) for approximately 15,000 NAVSEA HM&E technical manuals. Services include developing, updating and maintaining of paper legacy TMs and interactive hypertext linked to TMs. The Interactive Electronic Technical Manuals (IETM) are currently distributed on CD-ROMS and placed on servers for viewing by ship and shore activities via secured sites.

3.1.2.1 **Develop TMs**

Develop Interactive Electronic Technical Manuals (IETM) and hardcopy TMs for selected HM&E ship systems. Paper TMs will be developed using the appropriate references delineated in paragraph 2. IETMs may be developed by authoring in SGML or by sharing of SGML content from already developed SGML tagged TMs. The government will determine the class of IETM development necessary as delineated in paragraph 2, reference (t). Paragraph 2, references (l) through (p) will be used for IETMs. For each TM task, the Government will furnish the Contractor with the latest TMCR to identify what is required. Specific TM and IETM guidance is contained in but not limited to guidance found at <http://nsdsa.phdnswc.navy.mil/>. NSWCCD-SSES internal procedures will be furnished as required.

3.1.2.2 **Update/Maintain TMs**

? Revise and change IETMs and hardcopy TMs to reflect TM feedbacks (TMDERs) NAVSEA/NSWCCD advisories and trip reports, hardware configuration changes resulting from alteration installations, and improvement and standardization programs via paper or electronically.

? Convert paper copies of TMs to SGML files, as required, using the latest or required version of the NAVSEA C2 DTD that may be viewed at <http://navysgml.dt.navy.mil/repository.html>. The Contractor shall use the latest version of ArborText to edit the SGML files if required, publish using NAVSEA Publishing System and provide a linked PDF file.

? Update SGML files using the latest version of ArborText editor to reflect issued TM changes. All updates shall be performed using the NSWCCD-SSES JCALS server and modifying the instance or instances of the SGML file required.

? Perform and track data collection efforts for items such as TMs and logistic support technical documentation. Duplication of thousands of data items is required. Sources for data collection of TMs will be identified as GFI.

? Develop drawings and illustrations on Computer Aided Design (CAD) networks that are compatible with Navy computer aided logistic support (CALS) requirements. Develop other drawings using industry standard drafting techniques.

? Develop and prepare correspondence to TMDER originators as required by delivery orders.

3.1.3 **Planned Maintenance System/Class Maintenance Plan (PMS/CMP)**

The PMS/CMP program is used throughout the US Navy Fleet to maintain the reliability of installed equipment by providing maintenance procedures for shipboard equipment. This program provides support as in-service-engineering authority for HM&E shipboard systems, and is responsible for the technical content of PMS/CMP procedures for shipboard equipment.

3.1.3.1 **Develop PMS/CMP**

Develop Planned Maintenance System(PMS) Maintenance Index Pages (MIPs) and Maintenance Requirements Cards (MRCs) using New PMS Editor (NPE) for HM&E ship systems. Develop Class Maintenance Plan (CMP) tasks for HM&E ship systems. PMS specific guidance is contained in, but is not limited to the following:

- MIL-P-24534A PMS Development Specification dated 7 May 1985

- CMP specific guidance is contained in NAVSEA Tech Spec SL790-AC-SPN-010 /CMP, Class

Maintenance Plan (CMP) preparation for surface ships.

3.1.3.2 **Update PMS/CMP**

Update PMS/CMP (using NPE for PMS) in accordance with the following:

- Directions for Preparing Responses to PMS Technical Feedback Reports

- MIL-P-24534A PMS Development Specification dated 7 May 1985

- NAVSEA Tech Spec SL790-AC-SPN-010/CMP, Class Maintenance Plan (CMP) preparation for surface ships.

3.1.4 **Supply Support**

The Supply Support program provides services as NAVSEA's primary Technical Support Activity (TSA) for HM&E equipment and systems on board US Navy ships. TSA responsibilities include review and approval of Provisioning Technical Documentation (PTD) for new construction and overhaul programs, processing of engineering technical referrals from Defense Logistics Agency (DLA) and NAVICP-M.

3.1.4.1 **Develop Supply Support**

Develop Provisioning Technical Documentation (PTD), supply support and related documentation for new construction and overhaul programs for HM&E ship systems and equipment in accordance with the following specifications:

- Provisioning, Allowance & Fitting Out Support (PAFOS) Manual, Chapter 4

- MIL-PRF-49506 dated 11 November 1996 Logistic Management Information

- MIL-HBK-502 dated 30 May 1997 Acquisition Logistics.

3.2 **TASKS**

The tasks required to be performed by the contractor, in support of the requirements, and as described in paragraph 3.1 (Task Areas), are to provide technical data package and other data support, technical data conversion, distribution and management of technical data, miscellaneous technical data systems support, data protection, general support of joint logistics products and processes, and the design development, testing and fielding support of joint technical data integration.

3.2.1 **Technical Data Package and Other Data Support**.

3.2.1.1 As specified by the delivery order, the Contractor shall be required to prepare a data package to meet the requirements of the delivery order. The Contractor shall review Government furnished technical data and verify completeness, identify missing or incomplete data, and bring drawing standards into compliance with the requirements of the delivery order. The Contractor shall recommend specifications, performance thresholds, suitable military specifications of components in the Navy supply system, methods of testing, cleaning, inspection, and packaging to meet the specifications of the delivery order and provide the Government with the rationale for making such recommendations. If deemed necessary by the Government, the associated equipment will be supplied to the Contractor, as Government Furnished Equipment (GFE), to enable him to complete the task to the requirements specified in the delivery order. Before acceptance by the Government, the technical data package shall meet the criteria specified by delivery order.

3.2.1.2 As specified by delivery order, the Contractor shall review technical data packages (furnished as Government Information((GFI)) for technical accuracy, prepare subsequent changes for inclusion to the technical data package, make recommendations for changes with supporting rationale, and upon approval by the Government, incorporate the changes in the technical data package. The Contractor shall evaluate the changes for their immediate or potential impact upon the data package. Delivered data packages shall comply with the requirements specified by

the delivery order. A delivery order may require that a specific application software package be used to generate the data (e.g. AutoCAD, ISO Draw, Content@, Interleaf, AdeptEditor or Arbortext). It may require compliance with the Continuous Acquisition and Logistics Support (CALS) initiative, with the data to be delivered in one or more of the following formats: Standard Generalized Mark-up Language (SGML), Initial Graphics Exchange Specification (IGES), Computer Graphics Metafile (CGM), or International Consultative Committee on Telegraphy and Telephony (CCITT-4) and it may require the data to be delivered on tape or CD-ROM medium. The contractor shall also be able to scan existing manually prepared drawings and specifications, and perform change maintenance utilizing computer aided drafting software. The contractor shall have the capability to deliver the data files as intelligent databases and/or viewing files as specified in the delivery order.

3.2.1.3 The Contractor shall have the ability to obtain approved access to JCALS <https:nvss1web.navsses.navy.mil/> and Technical Data Management Information System <http://nsdsa.phdnswc.navy.mil/>. The contractor will be required to access NSWCCD-SSES Technical Data servers and obtain the latest version of ArborText editing software. The Contractor must have a high speed broadband Internet access at all locations/offices.

3.2.1.4 As specified by delivery order, the Contractor shall utilize GFI to prepare technical documentation to support various systems and programs. This documentation shall include, but will not be limited to engineering systems user guides, application notes, installation drawings and checkout procedures, technical directives, and technical bulletins. The Contractor shall ensure that the resulting documentation is accurate and complies with the technical source information. The original source data may not be in the format required for the final product specified by the delivery order.

3.2.1.5 As specified by the delivery order, the Contractor shall review and provide comments on technical data packages for associated product reproducibility in accordance with delivery order. The Contractor shall examine the technical data packages for compliance with part specifications, dimensioning and tolerancing, manufacturing processes, quality assurance procedures (including tests and inspections), proprietary parts or processes, and drawing practices as specified by the delivery order.

3.2.1.6 As specified by delivery order, the Contractor shall review technical data packages describing configuration items acquired by the Government. The Contractor shall provide the requisite engineering expertise to review these technical data packages to determine their acceptability to the Government. This determination of acceptability by the Contractor shall assess the accuracy and adequacy of the technical data package, its compliance with specified requirements, its suitability for the purpose of the classification specified by the Government, and that it meets the requirements of the specified classification of the delivery order. The Contractor, as specified by the delivery order, shall take into consideration the equipment life-cycle cost, mission, contract requirements, and other data provided as GFI in conducting the review. The Contractor shall identify and document any aspects of the technical data package not meeting Government requirements and shall document the rationale for all determinations made on the issues listed above or as otherwise listed by the delivery order.

3.2.1.7 As specified by the delivery order, the Contractor shall prepare and deliver a plan with inspection procedures and acceptance criteria for technical data package inspections to meet the applicable provisions of the delivery order and provide supporting rationale for each inspection and acceptance element.

3.2.1.8 Engineering Drawings and Associated Lists. As specified by the delivery order, the Contractor shall prepare or modify engineering drawings and associated lists to meet the requirements of the delivery order. The Government will provide, as GFI, change descriptions, drawing originals, models, or rough-draft sketches. Delivery orders will specify the required format of the drawings. Prior to delivering completed drawing packages, the Contractor shall inspect each new or modified drawing to ensure compliance with delivery order.

3.2.1.9 Specifications and Standards. As specified by the delivery order, the Contractor shall prepare, modify, or review specifications or standards. As specified by the delivery order, the Contractor shall review top level specifications prepared for system procurements. The Contractor shall analyze the Government’s operational system requirements and compare the requirements to requirements specified in the delivery order. Any differences (omissions or inclusions) shall be submitted as a report to the Government. Assumptions and rationale supporting

the findings shall be included. The Government will provide, as GFI, change descriptions, drawing originals, models, or rough draft. Delivery orders will specify the required format of the specifications or standards. Prior to delivering completed specifications or standards, the Contractor shall inspect each new or modified specification or standard to ensure compliance with delivery order.

3.2.1.10 The contractor shall provide technical date package disclosure classification assessment of data requested under the Freedom of Information Act (FOIA) program.

3.2.1.11 The contractor shall provide curriculum and training in the areas of technical data and related configuration management activities.

3.2.1.12 Provide support to Government configuration audit teams, by verifying and documenting that Configuration Items (CI) and their configuration identification are accurate, complete (according to specified requirements), adequate to establish the product baseline, and compatible with the next higher level design documentation. Discrepancies and recommended corrective actions shall be documented according to procedures established by the audit team and submitted to the Government with the Contractor's justification for recommendations and evaluations. The contractor shall support the configuration verification and audit process which includes but is not limited to the following areas:

? Configuration verification of the initial configuration of a CI, and the incorporation of approved engineering changes, to assure that the CI meets its required performance and documented configuration requirements
? Configuration audit of configuration verification records and physical product to validate that a development program has achieved its performance requirements and configuration documentation or the system/CI being audited is consistent with the product meeting the requirements.
? The contractor shall conduct configuration audits and/or inspections to ensure conformance to and/or validation of specifications, drawings and associated lists, product data management information and reference documents which define and/or document the characteristics of the item.

3.2.1.13 Review and evaluate change proposals for impact to technical data packages, including drawing packages, specifications, associated technical documentation, product data management information and related program concerns.

3.2.2 **Technical Data Conversion**
The contractor shall accomplish conversion of data of various types (e.g., technical manuals, engineering drawings, program data, etc.) to other formats as defined in individual delivery orders described in this Statement of Work (SOW).

1. A delivery order may require that a specific application software package be used to generate the data (e.g. AutoCAD, ISO Draw, Content@, Interleaf, AdeptEditor or Arbortext). It may require compliance with the Joint Continuous Acquisition and Logistics Support (JCALS) initiative, with the data to be delivered in one or more of the following formats:

A. Standard Generalized Mark-up Language (SGML)/Extensible Markup Language (XML).

Applicable specifications and Document Type Definitions (DTDs shall be specified in individual delivery orders). Selected DTDs may include, but are not limited to:

? MIL-DTL-81927C, dated 26 Nov 1997, Manuals, Technical: General Style And Format Of (Work Package Concept)

? MIL-STD-38784(1), dated 1 Dec 2000, Standard Practice for Manuals, Technical: General Style and Format

? NAVSEA C2 DTD

? MIL-PRF-87269A dated 15 Aug 2000, Data Base, Revisable - Interactive Electronic Technical Manuals

? EOSS DTD

? PMS DTD

A. Initial Graphics Exchange Specification (IGES)

B. Computer Graphics Metafile (CGM)

C. CALS Type IV

D Portable Document Format (PDF)

2. Delivery media (e.g., floppies, CD-ROM, FTP, etc.) will be specified in delivery orders.

3. The Contractor shall prepare the data/media (either active or historical) for data conversion (e.g., hard copy to microfiche, drawings to microfiche, paper to digital, etc.) and process for conversion.

4. The contractor will perform an analysis of technical data including its format and content, rapidity of change, data usage, longevity of data over the program life cycle, and relationship of data to other data elements. The contractor will make recommendations to the government, based on the above criteria, concerning the type of format most appropriate for the data.

5. Conversion efforts shall include 100% quality assurance of converted products for their intended purpose. Specific levels of quality assurance will be specified in each delivery order.

6. The contractor will provide engineering drawing conversion by converting drawings and associated documentation from existing hardcopy formats to more advanced electronic formats and levels such as; but not limited to the following:

Level 1, Raster Image: A scan of the original hardcopy drawing.

Level 2, Raster Image plus Cleanup: Contains Level 1 output enhanced by cleanup and deskewing. Removal of unwanted entities from the original and squares the drawing.

Level 3, Converted File: Conversion of file format type to another file format type (ex. TIFF converted to PDF)

Level 4, Automatic Vectorization: Converts the drawing to a vector representation of the raster scan, creating files that can be loaded into a CAD system for editing. Layers can be created.

Level 5, Text plus Auto Vectorization: Contains Level 4 output which is enhanced by ASCII text replacing the automatically vectorized text. Text and dimensions are now recognized as text rather than vector data and can be edited. The legibility is significantly improved.

Level 6, Enhanced Vectorization: Level 6 adds intelligence to the drawing by cleaning up the vector quality. Circles, arcs, and other geometry are true and precise geometrics. Lines are continuous and layered. Objects are clear and orthogonally correct.

Level 7, CAD Perfect: Level 7 results in a specified CAD perfect file. Video tracing or direct CAD redraw are two processes that produce this level of conversion. All entries are dimensionally and orthogonally correct with fully editable vectors and text. Layers, blocks, symbols, line types and current ANSI standards are incorporated.

Level 8, CAD to CAD conversion: The conversion of one CAD application file to another application file. An

example would be to convert a CADKEY file to AutoCAD.

Level 9, 2 Dimensional (2D) CAD Perfect Level 7 application file, to 3 Dimension (3D) Definition Model. Configuration geometry shall be modeled as full-scale (1:1) solid, surfacing or 3D wireframe techniques. The 3D definition techniques shall vary according to the type of part/assembly being presented for conversion. Data delivered to the Government will be indexed in accordance with the Engineering Drawing Conversion specification contained in Attachment B-1 of the Statement of Work.

7. Document and Image Processing. As specified by delivery order, the Contractor shall scan into databases (digital, CD-ROM, etc.) management and engineering documents furnished by the Government. If a government furnished system is not available, the Contractor shall provide a data retrieval system to locate and reproduce the original documents. Written operating instructions or desk book procedures may be provided with the delivery order.

3.2.3 **Technical Data Distribution**
The following tasks may be required in support of technical data distribution as defined in individual delivery orders.

1. Contractor shall support the distribution, initial outfitting, and supply of technical data (including technical directives). Through maintenance of user profiles and organizational account data, the contractor shall determine access and distribution requirements (including correct format, media and quantity) for all technical data products in accordance with distribution statements. Contractor shall maintain history, status, and meta-data applicable to technical data. The data shall be administered and capabilities provided for ad hoc reporting, queries, sorts, etc.

2. Based on user functional requirements, the contractor shall recommend the most effective delivery method for the technical data and appropriate media.

3. Contractor shall maintain an accurate and up to date file of activity's requirements for automatic distribution and order/requisition documents for DOD and commercial sources.

4. The contractor shall support customer requests for data whether online access, softcopy, or hardcopy distribution or a combination.

5. Contractor shall provide both research and support in the management and maintenance of documentation databases and the processing of initial outfitting and requisition processing. Review specified records to determine irregularities and take appropriate corrective actions accordingly.

3.2.4 **Technical Data Management**
The Contractor shall provide technical data management support in accordance with requirements set forth in delivery orders. These tasks encompass all aspects of the data management discipline. The Contractor shall work within the processes established by the Government to manage the configuration of data. The workflow will encompass four progressive status categories of digital data files.

- Working data, where the data is under the originator's control only
- Released data, where the working data has been approved by the Government has been released for its intended use, and is now subject to configuration control procedures
- Submitted data, where released data has been formally submitted to the Government for approval
- Approved data, where submitted data has been approved for its intended use by the Government

1. Data Identification. As specified by delivery order, the Contractor shall conduct an analysis of contracts and SOWs to identify and document potential data requirements. The Contractor shall request data requirements from all program participants via data call, compile received data requirements, participate in data requirements reviews, and prepare final data requirements lists. The Contractor shall prepare draft technical data requirements (including Contract Data Requirements Lists (CDRLs) and Data Item Descriptions (DIDs)), as specified in the delivery order.

2. Data Acquisition.

A. As specified by delivery order, the Contractor shall review delivered data items for form, content, adherence to schedule, correct distribution, and compliance with the CDRLs and DIDs. The Contractor shall provide analyses and written recommendations, with supporting evidence for the recommendations, regarding Government acceptance of these deliverables, taking into consideration requirements provided as GFI. The Contractor may be required to accomplish this review and evaluation at the vendor's facility and prepare all documentation in accordance with specifications identified in the delivery order. The Contractor shall provide technical services necessary to transition master documentation from hardware contractors or other Government activities.

B. The contractor shall participate in actions required to define digital data for delivery to or access by the Government in general, and for configuration management data in particular. With interactive access, the emphasis is on Government access to contractor maintained databases.

C. The contractor shall apply configuration management principles to ensure the integrity of digital representations of product information and other data and enhance good data management practice. The concepts are described, as follows, based on elements and principles expressed in EIA Standard 649:

- Document identification
- Data status level management
- Data and product configuration relationships
- Data version control & management of review, comment, annotation, & disposition
- Digital data transmittal
- Data access control.

3. Data Tracking. As specified by delivery order, the Contractor shall receive and record data on both management and engineering documents. The Contractor shall be responsible for the maintenance of the data management tracking system as specified in the delivery order.

4. Technical Data Maintenance. As specified by delivery order, the Contractor shall maintain data status changes in configuration and data management systems such as, but not limited to, Configuration and Data Management Support System (CADMSS), Configuration and Data Satellite (CADSAT), AUTOSERD, or SERMIS. The Contractor shall receive, record, and input GFI documents, verify the data inputs, and return the documents for Government disposition. For existing systems, written operating instructions or desk book procedures may be provided with the delivery order. The Contractor shall attend working sessions to resolve problems in the areas of maintenance and operation of data management systems.

5. The contractor shall provide support to ensure that technical data access is provided in a timely manner and to ensure that it is accurate data for the customers. This support includes the evaluation and status of current technical data, and assistance in the identification, evaluation and purification of the "master" technical data.

6. The contractor shall assess life cycle logistics, technical, and production data pertinent to US Navy shipboard engineering systems, subsystems, components, equipment and support equipment. Prepare recommendations for incorporation into Management Information Systems that will accommodate on-line access and cross referencing of related information. Recommendations shall be consistent and compatible with approved NAVSEA hardware/software applications.

7. The contractor shall provide detailed information that adequately defines the proposed acquisition strategy and establishes a basis for an effective TDP management program.

8. The contractor shall conduct logistics review group audits focused upon the technical data process.

3.2.5 **Miscellaneous Technical Data Systems Support**
The contractor may be required to provide professional and technical system support services in the form of, but not limited to systems administration, system analyses, solution development and implementation, software and networking support to all equipment and technical data systems.

3.2.6 **Data Protection**
This effort is to ensure that NAVSEA properly protects, discriminates and labels data, once it is procured and accepted, in accordance with National Security Policy and Federal Regulations. Services are required to provide subject matter expert guidance, support, and technical direction to programs and/or facilities in such areas of data disclosure, classification, distribution statements, rights in data, access and integrity. Services are also required to ensure that the data acquired by the government to support Logistics, Fleet Operations, and maintenance function is protected. These services include, but are not limited to, the following tasks.

1. Data Integrity Risk Assessments, Evaluations, Audits, and Testing: The contractor shall provide support for the performance of Data Integrity risk assessments, evaluations, audits, and testing of Navy, DoD, and Government facilities, systems hardware and software. The contractor shall support the Navy, DoD, and Government activities in the identification and evaluation of Data Integrity vulnerabilities of Navy, DoD, and Government facilities, systems hardware, and software. The contractor shall audit, test and evaluate the physical security of Navy, DoD, and Government facilities including those used for secure data processing, signal processing, and communications. The contractor shall utilize data from the performance of risk analyses and assessments to develop, test and implement Government approved Security Risk Management Plans for Navy, DoD, and Government systems. The contractor shall identify, gather, and compile Data Integrity risk data for the development, testing and implementation of Government approved System Security Plans for Navy, DoD, and Government systems.

2. OPSEC, COMSEC, and SIGSEC Program Planning and Development: The contractor shall provide support for Data Integrity implementation in Operations Security (OPSEC), Communications Security (COMSEC), and Signal Security (SIGSEC), and the associated Security Policy for Navy, DoD, and Government facilities, systems, hardware and software. The contractor shall support the development of Navy, DoD, and Government OPSEC, COMSEC and SIGSEC hardware, software, and documentation including policy statements, instructions, directives, and handbooks. The contractor shall review OPSEC, COMSEC and SIGSEC requirements for Navy, DoD, and Government facilities and programs and support the development and preparation of required efforts to protect technical data. The contractor shall help identify Navy, DoD, and Government OPSEC, COMSEC and SIGSEC threats, vulnerabilities and countermeasures. The contractor shall develop and maintain an inventory of security resources including hardware, software, and documentation used on various Navy, DoD, or Government programs. The contractor shall develop and maintain a database that will be used to assist in planning, budgeting, and tracking the acquisition and implementation of Data Integrity resources for major Navy, DoD, and Government acquisition programs. The contractor shall support the development of an overall Data Integrity Awareness Programs for Navy, DoD, and Government programs. The contractor shall help identify the logistics support and financial requirements for the implementation of Navy, DoD, and Government Data Integrity Awareness policy.

3. Acquisition Systems Data Protection Support: The contractor shall provide support for the implementation of Acquisition Systems Data Protection Support on Navy and DoD programs. The contractor shall develop and submit for approval Acquisition Program Protection Plans (PPPs) for the security of Navy and DoD acquisition program data. The contractor shall gather, assimilate, and analyze the information required for the development of Acquisition Program Protection Plan. The contractor shall help identify Navy and DoD system sensitive technologies and unique system features to counter foreign intelligence services (FIS) collection efforts and unauthorized disclosure of sensitive data/technologies. The contractor shall review Navy and DoD Foreign Military Sales (FMS) programs to help identify and evaluate technology. The contractor shall identify resources including personnel, equipment, facilities, and funding required in each acquisition phase for providing the level of protection proposed in the Acquisition Program Protection Plan. The contractor shall examine security classification guides, technology assessment and control plans, and delegation and disclosure authority letters to help ensure compliance with Acquisition Program Protection Plans. The contractor shall develop and maintain a database that will be used to assist in planning and tracking the requirements for the development of Acquisition Program Protection Plans and OPSEC Plans for Navy and DoD acquisition programs. The contractor shall perform all logistics and financial

analyses necessary for the definition of acquisition program data protection requirements including the development of Acquisition Program Protection Plans and make recommendations based thereon.

4. Automated Information System (AIS) Security Evaluation Support: The contractor shall provide support for the implementation of Automated Information System (AIS) Security evaluation Support for Navy, DoD, and Government AIS, hardware and software. The contractor shall support the Navy, DoD, and Government activities in the evaluation of security vulnerabilities of Navy, DoD, and Government Automated Information Systems including all hardware and software. The contractor shall evaluate the effectiveness and provide recommendations for access control methodologies, hardware, and software for Navy, DoD, and Government Automated Information Systems and network resources protecting corporate data. The contractor shall evaluate the vulnerability and integrity of Navy, DoD, and Government Automated Information Systems, data and networks to software and network viruses and worms. The contractor shall utilize security integrity models to evaluate the vulnerability of Navy, DoD, and Government Automated Information Systems data, networks, and software. The contractor shall evaluate the design structure of Navy, DoD, and Government system software for data integrity and security vulnerabilities using Computer Aided Software Engineering (CASE) technology. The contractor shall develop, evaluate and make recommendations to maintain the adequacy of Navy, DoD, and Government facility Contingency Plans and Disaster Recovery Plans. The contractor shall support the implementation of Computer Security Certification and Accreditation of Navy, DoD, and Government Automated Information Systems (AIS) and Network systems. The contractor shall develop and maintain a database that will be used to identify and track data integrity and security events or incidents that have been logged and identified on Navy, DoD, and Government AIS. The contractor shall support the planning and implementation of information security operations performed by an authorized Computer Emergency Response Team (CERT) on Navy, DoD, and Government AIS assets. The contractor shall evaluate the level of damage caused by information security incidents relating to data integrity incidents and define technical, operational, and financial requirements for the restoration of AIS operations and data and the elimination of identified vulnerabilities.

5. Automated Information System (AIS) Data Integrity Planning Support: The contractor shall provide support for the implementation of AIS Data Integrity Planning Support for Navy, DoD, and Government AIS, hardware, and software. The contractor shall support the development of Navy, DoD, and Government AIS Data Integrity hardware, software, and documentation including policy statements, instructions, directives, and handbooks. The contractor shall define Navy, DoD, and Government Data Integrity vulnerabilities and countermeasures for Automated Information Systems. The contractor shall identify Navy, DoD, and Government system threats in the area of Information System Data Integrity. The contractor shall support the development of AIS Data Integrity Awareness Programs for Navy, DoD, and Government programs and facilities. The contractor shall define the logistics support and financial requirements for the implementation of AIS Data Integrity policy for Navy, DoD, and Government organizations. The contractor shall identify, gather, and compile the required data for the development and implementation of Navy, DoD, and Government system and facility Contingency Plans and Disaster Recovery Plans. The contractor shall develop and submit for approval required System Data Integrity Plans for Navy, DoD, and Government systems.

6. Data Integrity Curriculum Development and Training: The contractor shall provide support for the development and implementation of Navy, DoD, and Government Data Integrity Training Courses, Media, Interactive Courseware (ICW), and Computer Based Training (CBT). The contractor shall investigate and identify the Manpower and Training (MPT), logistics support, training technology, training media, resource, schedule, and cost requirements for the development and presentation of Data Integrity training courses. The contractor shall support instructional system development for Data Integrity training courses based on conventional presentation media, computer based training. The contractor shall develop required training documentation, training aids, and special media including interactive courseware for Data Integrity training courses. The contractor shall develop training course outlines, training schedules, and training plans for the presentation of training courses. The contractor shall review, evaluate, and provide recommendations for any required modifications to existing Data Integrity training courses. The contractor shall plan, organize, coordinate, and present Data Integrity training courses for Navy, DoD, and Government personnel.

3.2.7 **General Support of Joint Technical Products and Processes**

Code 94 is charged to plan and direct the transition of Defense technical data management from the migratory stovepipe systems to a fully-interoperable, open, logistics integrated data product environment (IDPE). This effort will require research and preparation of required system acquisition and management documentation, along with associated briefing materials, point papers and reports. The Contractor shall provide analyses of existing business processes and development of schema to evolve these processes to the digital environment; develop case study reports; maintain management action reporting records and prepare point papers, concept papers, and analyses of technical topics related to Navy and DoD Technical Data Management. The Contractor shall develop and maintain acquisition strategy documents including a strategic planning schedule. The contractor shall also support the Joint Technical Data Integration (JTDI) program management team in managing the JTDI Projects. This includes, but is not limited to, the design, development, testing, fielding and support, both domestically and internationally, of such information technology systems as JEDMICS, CMIS, and CAD II. This will involve Acquisition Planning, Acquisition Program Base-lining, Program Protection and System Security, Budget justification backup and execution including spend plan development and tracking, Contract Planning, Systems Engineering, Risk Management and Analysis, Integrated Logistics Support, Integrated Product and Process Development and Configuration Management. The contractor shall also prepare required Memorandums of Agreements /Understandings; assist in conducting Acquisition Reviews; assist in the development of backup data for Planning, Programming & Budgeting; provide C4I support; plan and assist in the implementation of Quality Assurance Programs; develop Information Requirements for Milestone Reviews; conduct Analysis of Alternatives; perform Cost Analysis; provide Threat Assessments; plan and assist in the development and implementation of Test & Evaluation Plans; and provide Program Management Assistance in the oversight and integration of other JTDI contracting efforts and related fielding activity tasking. The contractor shall perform, but is not limited to the following tasks:

1. Engineering assessments, technical assistance, and evaluation. The contractor shall provide, but is not limited to the following: participating and assisting in Program Executive Officer (PEO) In Process Reviews (IPRs), PEO Transition Meetings, PEO/Service/Agency Business Program Reviews (BPRs), and other JTDI Projects implementation meetings. The contractor will prepare pre- and post-meeting documentation on issues of concern related to these meetings. For BPRs, the contractor will collect required data from each site and the contractors to prepare briefing slides and status on BPR action items, site planning issues, and recording of issues relative to fielding and upgrading of the projects.

2. Site Status Tracking and Reporting. The contractor will maintain a system for collecting, tracking, and reporting the status of essential information such as, site points of contact, loading performance metrics and usage data, site install tracking, issues, events, and other information as necessary. Reports shall be developed and provided on a recurring basis for briefing and status display purposes. The contractor will also assist in the preparation of a performance metrics notebook containing current operational information, issues, and configuration for each operational site.

3. Program/Project Update Reports. The contractor shall develop, prepare, and distribute a Program/Project Update report containing; program information, articles citing business process improvements, planned system enhancements and software updates, meeting schedules, and other articles of interest.

4. Site Upgrade and Transition Planning. The contractor shall assist the PEO in the preparation of site upgrade and transition planning.

5. Program/Project Meetings. The contractor shall organize, prepare for and assist in the administration of Program/Project Meetings to include: site search, facility arrangements, conference planning letters, advance meeting support, conference agenda and documentation preparation, computer support, registration, audiovisuals, photocopying, and preparation of conference minutes and action items.

6. Training Analysis and Audits. The following tasks provide training support to assess, update, and implement user and operator training for future software enhancements and releases. Specifically, the contractor shall:

A. Prepare training reports as directed by the PEO.

B. Monitor the status of ongoing training programs and new training being developed.

C. Support implementation of new software release training.

D. Review and analyze contractor's training program documentation.

E. Assist with the distribution of site training documentation.

7. Configuration Management Support. The contractor shall provide management and technical assistance in areas directly supporting JTDI Projects Configuration Management (CM). The contractor shall provide administrative and technical assistance for the Project CM Technical Review Board and other support.

8. Service Requirements and Integrated Product Team (IPT) Meetings. The contractor will provide technical support for Service Requirements and IPT meetings/reviews, record technical notes, and distribute minutes and action items.

9. Implementation Graphics. The contractor will acquire, display, and maintain charts and other graphics, as required, for the PMO Management Information Center (MIC) and provide briefing presentation graphics as necessary.

10. Software Release Support. The contractor shall support the planning, designing, developing, testing, fielding and supporting the JTDI information technology products. This effort will ensure that each of these product areas are compliant with approved DoD architectures, guidelines and standards and will serve to further the DoD goal of achieving an integrated and interoperable DII. The efforts will include but not be limited to the following:

A. Plan. The contractor shall assist in the efforts to specify the content of each release, define responsibilities, estimate costs, provide schedules and define requirements for development, test and installation products.

B. Monitor. The contractor shall attend program review meetings, as required, to assess the progress of Releases. The contractor shall also review Release deliverables to assure Conformance with Release Plan requirements.

11. Providing engineering assessments and evaluations of the prime contractor's current software products, procedures and simulation efforts. The contractor shall provide assessments that include QA parameters, software analysis and trouble report metric analysis.

12. Assist with preparation of technical packages for and planning for software review meetings and planning conferences.

13. The Contractor shall provide Information Technology (IT) Support Services to the JTDI PEO. This effort shall consist of technical analyses and report preparation for the Program Office and direct support to DoD Acquisition Managers and the field. This effort also includes site coordination visits for the purpose of improving the flow of information between PEO and sites and among sites.

3.2.8 **Design, Develop, Test and Fielding Support of Joint Technical Data Integration**

The contractor shall support the design, development, testing, and fielding support, both domestically and internationally, of the JTDI Projects. This will involve but not be limited to:

1. Provide technical support in the integration of JTDI projects. Develop migration strategies to move existing system(s) to the end state JTDI environment.

2. Provide systems analysis and technical support in the evaluation, design, development, testing and documentation of application enhancements for users with access to JTDI tools. Provide recommendations in support of business process improvements and system enhancements for the JTDI Tool set.

3. Assessing Hardware and Software (Commercial-off-the-Shelf and Government-off-the Shelf) for application and integration into IDPE solutions that support the overall JTDI strategy.

4. Review and evaluate existing design, functional, interface and product specifications for integration of JTDI Project's, system, subsystems, equipment, and associated software and provide recommendations for the update of these specifications.

5. Identify support data necessary in JTDI projects, including CMIS, for assessment of the operational readiness, configuration status accounting, reliability and maintainability, and parts life tracking, in support of ECP incorporation into a weapon system, subsystem or support system.

6. Develop and apply test procedures and provide data that demonstrates that the design and development of JTDI Projects are complete, design risks are minimized, and the systems will meet government specifications. The contractor shall report findings, impacts and recommendations.

7. Technically assessing the supplier's software, hardware and data deliveries to assure proper integration with program requirements and schedules.

8. Identifying design deficiencies related to JTDI Projects, systems, subsystems, and equipment and recommending engineering change proposals.

9. Provide technical support in the evaluation, design, development, testing and documentation of application enhancements for users with access to modification management tools. Monitor accuracy and completeness of Modification Program Implementation Management (MOD PIMS) or other ECP tracking systems and provide recommended updates/improvements to existing and planned systems.

10. Monitor the accuracy and effectiveness of existing tools used to support our deployed weapon systems. Provide recommendations for business process improvements and ways to migrate to CMIS and the other JTDI tools faster and more effectively.

11. Performing computer language programming and conducting analysis during Software Quality Assurance.

12. Conducting Software Release Performance Analysis that includes cost and schedule performance and metrics designed to enable estimation of future software releases. The analysis shall also include the impact of COTS on developmental cost and schedule. The analysis shall also include the quantification of requirements.

13. Providing management and technical services for JEDMICS Requirements Tracking System (JRTS) [or substitute] support. This will include maintaining and updating the JRTS Web site by providing:

    A. Home Page maintenance, modifications, including file conversion to HTML;

    B. Upload of files to JRTS server, modification of files as required for HTML formatting and creation of hyperlinks from Home Page to file.

    C. JRTS Web Site directory structure and file maintenance;

    D. File loading, periodic update, and file purging;

    E. File content analysis and summarization to accompany file upload; and

    F. Evaluation of PEO Requirements for system expansion or modification for submission to JRTS System Administrator.

14. Providing evaluations of the JRTS [or substitute] and making recommendations for enhancements to or substitution to the JRTS; Preparing file loading reports; and site usage reports as required; and Participating in scheduled JRTS Technical/Management meetings and preparation of minutes as required.

15. Providing engineering and independent validation and verification support on a variety of technical issues related the JTDI. This will include providing technical support and input regarding related programs to include JEDMICS, CMIS, CAD II, KAMNET, and the JEDMICS PDM/CM efforts. Also this will include participating in overall architecture and security design and implementation efforts relative to these programs and overall CM/DM integration.

4. **DELIVERABLES**

4.1 **Ship Check Reports**

Within five (5) working days of completion of a ship check, a ship check report will be generated for each tasked ship check to include: redlined drawings and sketches, procedural and other documentation updates, test results, problem areas, recommendations and general data to include, ship, hull, location, date and points of contact onboard the ship.

4.2 **Monthly Progress Reports**

Every 30 days, for each delivery order awarded, the contractor will provide a status report in the format specified in each delivery order. A copy will shall be provided to NSWCCD Code 94, the COR and the Contracting Officer.

4.3 **CDRLs**

- Developed, Revised, and/or edited PMS, TRS and TP's (A001)
- Developed, Revised, and/or edited RCM developed PMS and TSTP packages (A002)
- Status/Progress Report (A003)
- Start of Work Impact Statement-c/942 (A004)
- Modification to Quality Assurance Plan (A005)
- Validation/Verification Plan (A006)
- Code 944 (Technical Manuals) Status Reports (A007)
- Completed TMIN-R/CD Volume Label Request (A008)
- Review Manuscript (A009)
- Final Reproducible Copy (A010)
- CD and/or Electronic Copy (A011)
- Validation Report (A012)
- Run Sheet/Print Sequence Sheets (A013)
- Cold Check Agenda (A014)
- Procedures and Diagrams annotated during cold check (A015)
- Report on Status of Ship Systems (A016)
- Development Schedule (A017)
- Ship Alteration to Doc/Diagram Matrix (A018)
- Configuration Check data sheet (A019)
- Hot check package (A020)
- Report on changes to baseline (A021)
- Final package for review (A022)
- Final NSWCCD approved printmasters disks and/or electronic copy (A023)
- NSWCCD approved final package (A024)
- Completed configuration check sheet data (A025)
- Report on status of final review package (A026)
- Status Report for C/9433 (A027)
- Configuration check agenda (A028)
- Logistics Management Summary (A029)
- Logistics management information supportability analysis summary (A030)

- Bookplan (A031)
- In Process review samples (A032)
- IPR Report (A033)
- Start of work impact statement-c/944 (A034)
- In process reviews (A035)
- ATIS compatible CD-Master (A036)
- SGML source data (A037)
- F-separated PDF file (TMPODS) (A038)
- CD label artwork (A039)
- Distribution list and labels (A040)
- TMDERS/RACS (A041)
- Data Collection (A042)

5. **Government Furnished Property**

All Government furnished property will be identified in the individual delivery orders.

6. **Place of Performance**

It is estimated that the work effort required will occur at the following locations as indicated: Contractor's facility- 50%; Various ship homeports within the continental United States and internationally- 40%; NSWCCD Philadelphia, PA and Carderock, MD sites- 10%.

7. **Personnel Qualification Requirements**

The following are the qualification requirements for the personnel to be used in performance:

1. PROGRAM MANAGER (Key Personnel)

1. Bachelor's Degree in an engineering discipline from an accredited college or university, or P.E. license or equivalent work experience.

2. Ten (10) years experience in management of engineering projects involving maintenance, repair, testing, product improvement, or alteration of naval ship Hull, Mechanical, Electrical, and Electronic, and Ordnance systems and equipment. Direct experience with developing, modifying and reviewing naval shipboard technical documentation is desired. The 10 years should include the following, which could have been obtained concurrently.

a. Six (6) years of working experience in managing engineering projects involved in design, test, maintenance or operation of Hull, Mechanical, Electrical, Electronic, Ordnance Systems and equipment.

b. Three (3) years working experience in engineering and logistic projects involving development maintenance of HM&E logistics technical data.

3. Working experience in the DOD material acquisition procedures.

4. Working knowledge of Naval Sea Systems Command, Naval Surface Warfare Center, naval shipyard, Supervisor of Shipbuilding, Conversion and Repair and Type Commanders' organizations. Working experience with these organizations is highly desirable.

2. SENIOR ENGINEER (Key Personnel)

1. Bachelor's Degree in engineering (mechanical, electrical, electronics, or naval/marine engineering) from an accredited college or university of P.E. license.

2. Six (6) years experience in the design, testing, installation, maintenance and alteration of naval ship Hull, Mechanical, Electrical, Electronic, equipment and systems. Direct experience with developing, modifying and reviewing naval shipboard technical documentation is desired. Should include experience in all stages of the engineering process from initial design through production.

3. Experience in the Navy's material procurement procedures.

4. Working knowledge of Naval Sea Systems Command. Naval Surface Warfare Center, naval shipyard, Supervisor of Shipbuilding, Conversion and Repair and Type Commanders' organizations

3. ENGINEER (Key Personnel)

1. Bachelor's Degree in engineering (mechanical, electrical, electronics, marine, or naval/marine engineering) from an accredited college or university or P.E. license.

2. Four (4) years experience in the design, testing, installation and maintenance of naval ship Hull, Mechanical, Electrical, Electronic, Ordnance equipment and systems. Should include experience in all stages of the engineering process from initial design through production alterations. Direct experience with developing, modifying and reviewing naval shipboard technical documentation is desired.

4. PROJECT ENGINEER (Key Personnel)

1. Engineering Degree or six (6) years experience managing engineering projects in lieu of Engineering Degree. This experience should not have been gained concurrently with the experience requirements listed in paragraph (2) and (3) below.

2. Three (3) years experience in design, operation, maintenance, and testing of Naval Ships Hull and Deck Machinery Systems and Equipment; working knowledge of Navy data systems, and knowledge of Navy Procedures for establishing and maintaining equipment maintenance requirements. Direct experience with developing, modifying and reviewing naval shipboard technical documentation is desired.

3. One (1)year project engineering experience in maintenance, repair, testing, installation or alteration of naval ship systems is highly desirable.

5. SENIOR ENGINEERING TECHNICIAN (Key Personnel)

1. Graduate of high school, trade or industrial school or GED equivalent.

2. Six (6) years practical engineering experience which should include the operation, test, maintenance and repair of naval ship Hull, Mechanical, Electrical, Electronic, Ordnance equipment and systems.

3. Two (2) years experience in the preparation of original technical documentation involving the operation, maintenance or testing of naval ship Hull, Mechanical, Electrical, Electronic, equipment and systems is highly desirable.

6. ENGINEERING TECHNICIAN

1. Graduate of high school, trade or industrial school or GED equivalent.

2. Four (4) years practical engineering experience in the operation, test, maintenance and repair of naval ship Hull, Mechanical, Electrical, Electronic, equipment and systems. Two (2) years experience in technical illustrating.

3. Experience in the use of naval ship blueprint and technical manual drawings to produce artwork suitable for inclusion in documentation is highly desirable.

7. LOGISTICIAN (Key Personnel)

1. Graduate of high school, trade or industrial school or GED equivalent.

2. Six (6) years experience of the Naval Logistics System that should include:

a. Experience in identifying material and logistic requirements for ship alteration and repair.

b. Experience with the Navy supply and procurement systems and procedures for requisitioning and purchasing material required to support ship alterations and repairs.

c. Experience in researching types and quantities of equipments allowed aboard ship, to include a minimum of one year experience in use of the Ship's Configuration and Logistic Support Control (SCLSC) database.

8. QUALITY ASSURANCE SPECIALIST

1. Graduate of high school, trade, or industrial school or GED equivalent.

2. Three (3) years experience in performing quality assurance and control inspections on naval ship Hull, Mechanical, Electrical, Electronic, systems for specification and engineering drawing requirement compliance.

3. Five (5) years shop experience which has provided a practical knowledge of quality assurance programs, quality control inspection systems, and machining skills and a detailed knowledge of shop procedures, processes, methods and techniques.
4. Experience more relevant to naval technical documentation is preferred.

9. TECHNICAL ILLUSTRATOR

1. Graduate of high school, trade or industrial school or GED equivalent.

2. Two (2) years experience in technical illustrating.

3. Experience in the use of blueprint and technical manual drawings to produce camera ready artwork suitable for inclusion in documentation. Experience with shipboard blueprints and technical manual drawings is preferred.

10. TECHNICAL WRITER

1. Six (6) years experience in the planning and preparation of varied types of technical documentation on naval ship Hull, Mechanical, Electrical, Electronic, systems and equipments. A Bachelors Degree in English or Journalism may be substituted for three of the six years experience.

2. Experience in the detailed information search and interpretation of technical data in the preparation of technical documentation.

11. ENGINEERING AIDE

1. Deemed non-professional personnel to support the work or professional technical personnel. Minimum requirement is one (1) year experience in clerical/typist capacity.

12. SYSTEMS ENGINEER

1. Bachelor of Science degree in Computer Science or a related field.

2. Five (5) years experience in designing computer systems, integrating computer hardware and software, and building computers or designing network systems. Extensive knowledge of microcomputers and Local Area Networks is desired.

13. SYSTEMS ANALYST

1. Bachelor's Degree in Management Information Systems or a related field. The degree may be substituted with an A.A.S. degree and four (4) years experience as an Analyst/Programmer in addition to the experience set forth in paragraph (2) below.

2. Four (4) years as a Systems Analyst; experience should be in DOS/Windows or Unix Operating Systems.

14. PROGRAM ANALYST (Key Personnel)

1. Bachelor's Degree in Management Information Systems or a related field. The degree may be substituted with an A.A.S. degree and two (2) years experience as a Programmer in addition to the experience set forth in paragraph (2) below.

2. Two (2) years as a Program Analyst; experience should be in DOS/Windows or Unix Operating Systems.

15. PROGRAMMER (Key Personnel)

1. Associate's Degree in Computer Science, Computer Programming or Computer Operating or minimum or four (4) years equivalent experience without degree.

2. Three (3) years experience in utilizing scientific programming skills with digital computer systems, information systems, data management or configuration control applications. Some experience should be in DOS/Windows or Unix operating systems.

3. Experience in using SGML/XML, IGES, CGM CALS Type IV and PDF is highly desirable.

16. CAD/CAM OPERATOR

1. High school diploma and three (3) years of experience developing and revising engineering drawings for shipboard systems. Graduation from an accredited technical, vocational, or apprentice school drafting program may be substituted for up to two (2) years of experience.

2. One (1) year of experience including use of AUTOCAD Release 10 and 12 and is preferred.

3. One (1) year of experience including use of ISODRAW Release 5.0 is preferred.

17. TYPIST

1. The typist should be experienced in the operation of work processing systems as installed on IBM-compatible word processors, and should have at least one year experience in three systems.

18. DATA TRANSCRIBER

1. High school diploma and three (3) years of experience in the data transcription field.

2. The Data Transcriber shall be able to enter data into a number of computerized systems and review their work for correctness.